

FILE NOTATIONS

Entered in NID File ✓
Location Map Pinned
Card Indexed ✓

Checked by Chief
Approval Letter
Disapproval Letter

COMPLETION DATA:

Date Well Completed 7/22/78

Location Inspected

W..... WW..... TA.....
GW..... OS..... PA... ✓

Bond released
State or Fee Land

LOGS FILED

Driller's Log..... ✓

Electric Logs (No.)

E..... I..... Dual I Lat..... GR-N..... Micro.....

BHC Sonic GR..... Lat..... MI-L..... Sonic.....

CBLog..... CCLog..... Others.....

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
 DRILL DEEPEN PLUG BACK

b. TYPE OF WELL
 OIL WELL GAS WELL OTHER
 SINGLE BORE MULTIPLE BORE

2. NAME OF OPERATOR
 Natomas North America Inc.

3. ADDRESS OF OPERATOR
 1121 First Place, Tulsa, Oklahoma 74103

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)
 At surface: SE-SW Sec. 34, T38S, R21E, S.L.M., San Juan County, Utah
 At proposed prod. zone: (1909' from W-line and 684' from S-line)

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE
 Approx. 16 miles southwest of Blanding, Utah

16. NO. OF ACRES IN LEASE
 500 acres

17. NO. OF ACRES ASSIGNED TO THIS WELL
 40 acres

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
 More than 2 miles

19. PROPOSED DEPTH
 6250' Hermesa

20. ROTARY OR CABLE TOOLS
 Rotary

21. ELEVATIONS (Show whether DP, RT, GR, etc.)
 5190' grd.; 5200' K.B.

22. APPROX. DATE WORK WILL START
 June 5, 1978

5. LEASE DESIGNATION AND SERIAL NO.
 U-31257

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
 Federal

9. WELL NO.
 Black Mesa #1-34

10. FIELD AND POOL, OR WILDCAT
 Wildcat

11. SEC., T., R., M., OR B.L. AND SURVEY OR AREA
 -SE-SW Sec. 34-38S-21E S.L.M.

12. COUNTY OR PARISH
 San Juan

13. STATE
 Utah

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/2"	8-5/8"	24#	250'	125 sks (cement to surface)
7' 7-7/8"	5 1/2"	15.5#	T.D.	150 sks of RFC cement

It is planned to drill a well at the above location to test the oil and/or gas productive possibilities of the Ismay and Desert Creek zones in the Hermesa formation. The well will be drilled with rotary tools, using mud for circulation. Approx. 250' of 8-5/8", K-55, Range 3, 24# casing will be set and cemented with returns to the surface. A casing head and blowout preventer will be installed on top of the surface casing. The control equipment will be tested to 2000# pressure checking for leaks. All hydrocarbon shows will be drill-stem-tested when they are drilled. Some of the more favorable zones may be cored. In the event of production 5 1/2", 15.5#, K-55, R-2 casing will be set and cemented with about 150 sacks of RFC cement. The productive zones will then be perforated and completed conventionally. A prognosis for the well is attached hereto. It should take about 25 days to drill the well.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

SIGNED H. Now Quigley TITLE Cons. Geol. DATE May 18, 1978

(This space for Federal or State office use)

PERMIT NO. 43-037-30442 APPROVAL DATE _____



WELL PROGNOSIS
FOR
NATOMAS NORTH AMERICA INC.
BLACK MESA #1-34 WELL
SE.SW.SEC.34-38S-21E, SLM
SAN JUAN COUNTY, UTAH

Location: SE.SW.Sec 34, T38S, R21E, S.L.M., San Juan County, Utah
(1909' from W-line & 684' from S-line)

Elevations: 5190' grd.; 5200' K.B.

Surface Casing: 8-5/8", 24.00#, K-55, R-3 casing set at approx. 250', and cemented with 125 sks cement with returns to the surface.

Expected Formation Tops:

<u>Formation:</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Morrison	Surface	200'	5200' K.B
Summerville-Curtis	200'	150'	5000'
Entrada	350'	550'	4850'
Carmel	900'	100'	4300'
Navajo	1000'	650'	4200'
Kayenta	1650'	150'	3550'
Wingate	1800'	420'	3400'
Chinle	2220'	480'	2980'
Shinarump	2700'	100'	2500'
Moenkopi	2800'	320'	2400'
DeChelly	3120'	125'	2080'
Organ Rock	3245'	575'	1955'
Cutler	3820'	1000'	1380'
Rico	4820'	200'	380'
Nermosa	5020'	880'	180'
Ismay *	5900'	170'	-700'
Gothic Shale	6070'	40'	-870'
Desert Creek*	6110'	90'	-910'
Paradox	6200'	----	-1000'
Total Depth	6250'		

* Zones that may have hydrocarbon prospects.

1. It is planned to drill a 12 1/4" hole for the surface casing down to a depth of approximately 250', and set 8-5/8", 24.00#, K-55, R-3 casing at that depth and cement same all the way to the surface. A casing head with flange (Series 900) will be mounted and welded to the top of the surface casing. A blowout preventer with blind and pipe rams (hydraulic) will be mounted on top of the casing head and bolted down and tested for leaks at 2000#.A

drilling nipple with mud line to the mud tanks will be mounted on top of the blowout preventer. Fill and kill lines will be connected to the casing head below the blowout preventer and thru a manifold to permit rapid control in case of high pressure.

2. A 7-7/8" hole will be drilled below the surface casing, using mud for circulation. A mud logging laboratory will be employed on the well starting at a depth of approximately 2000'. The mud will be carefully controlled and kept at a weight of about 9 lbs/gal., a viscosity of about 35-45, and a water loss of below 10 cc/15 min.
3. Samples of the drill cuttings will be taken at 10-ft. intervals, beginning at a depth of about 1500'. These samples will be carefully examined and logged.
4. It is planned to drill-stem-test all favorable hydrocarbon shows as they are drilled. It is also possible that the Ismay and Desert Creek zones will be cored. This decision will be made at a later date and will be dependent on the type of show observed.
5. After the well reaches total depth the hole will be logged electrically, using a Dual Induction Laterolog, a gamma-density log, and a neutron porosity log. These will be carefully evaluated and correlated with the drilling information. Before logging the viscosity of the mud will be raised to about 90 to insure passage of the logging tools.
8. If good production is obtained, 5½" casing, 15.50#, K-55, R-2, will be set thru the productive zones and cemented with about 150 sks of RFC cement to insure good bond. After running bond and correlation logs, the pay zones will be perforated and probably treated with weak acid.
9. If the well is dry, the hole will be plugged and abandoned according to regulations; and the location cleaned, levelled and reseeded as soon as possible.
10. Estimated costs of the well to casing point are as follows:

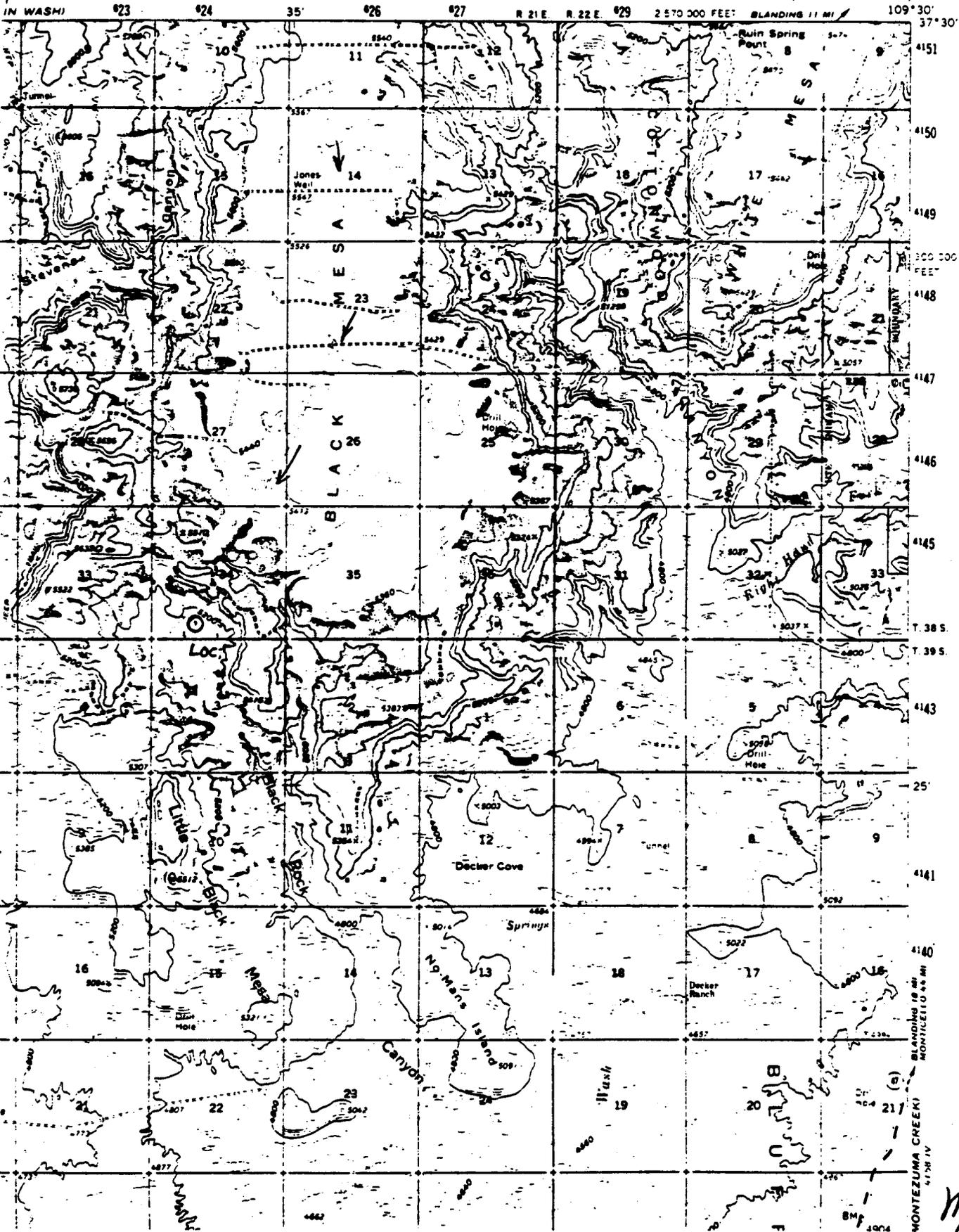
Survey and permit work -----	\$650.00
Road and location work -----	1500.00
Surface casing and cementing ----	2500.00
Casing head	500.00
Drilling contract (25 days at \$3700/day)	92,500.00
Move-in & out	15,000.00
Drill-stem-tests (2)	4,000.00

Electric logs -----\$7700.00
Mud logging lab.----- 4500.00
Supervision & engineering -----4500.00
Water hauling -----10000.00
Mud -----25000.00
Miscellaneous ----- 10000.00
Total estimated cost\$178,350.00

W. Don Crigley
W. Don Crigley
Consulting Geologist
AAPG Cert. #1296
APGS Cert. #3038

BLUFF QUADRANGLE
UTAH-SAN JUAN CO.
15 MINUTE SERIES (TOPOGRAPHIC)

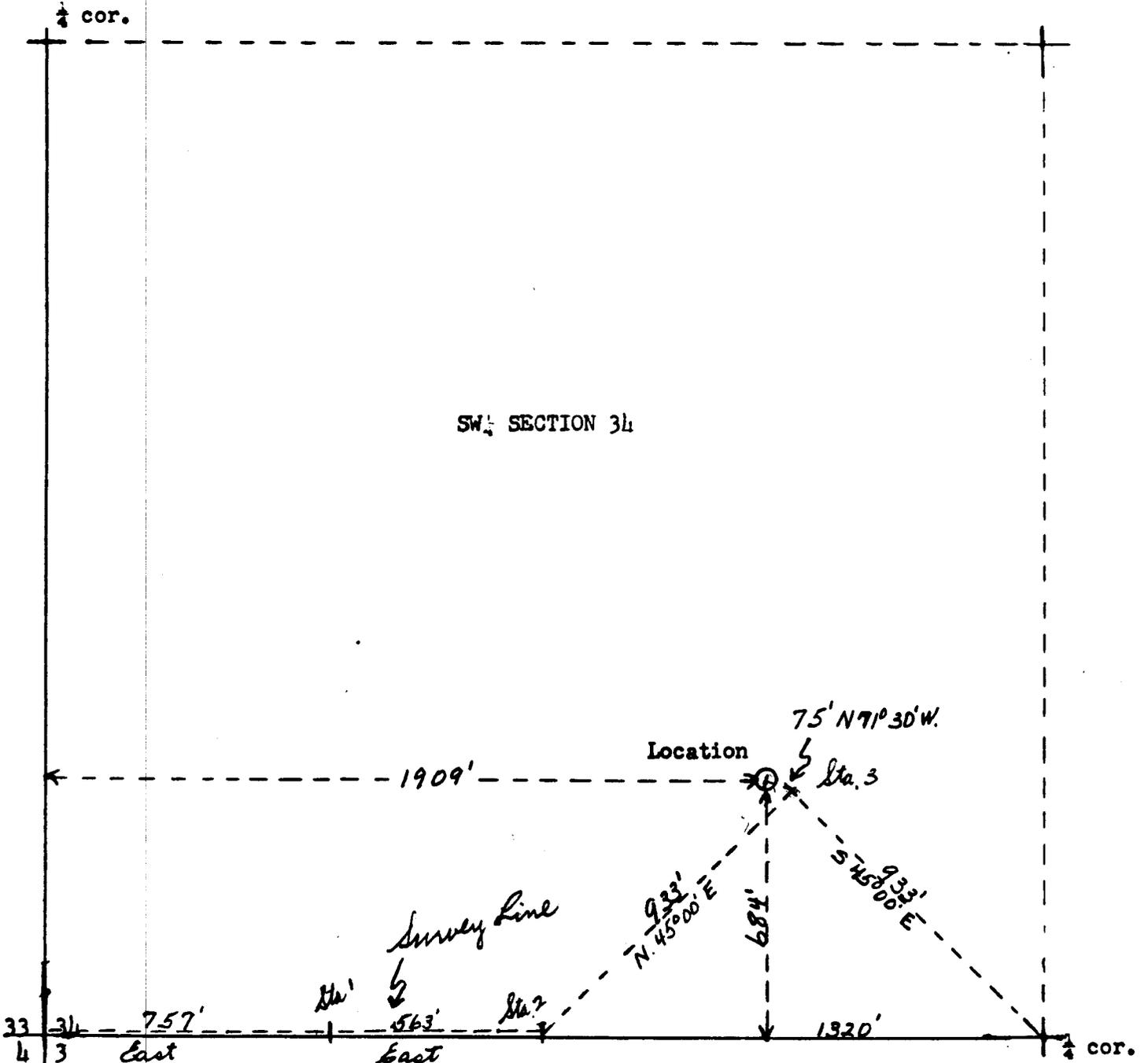
159 III
(BLANDING)



Map No. 1

LOCATION PLAT FOR
 BLACK MESA # 1-34 WELL
 SE. SW. SEC. 34-38S-21E.
 SAN JUAN COUNTY, UTAH

Elev.: 5190' grd.



Ref. stakes are placed at the corners of the site and 100' NE. & SW. of location stake.

Scale: 1 in = 400 ft.
 Date: Mar. 18, 1978
 Surveyed by: W. Don Quigley

I, W. Don Quigley, certify that this plat was plotted from notes of a field survey made by me on Mar. 18, 1978.

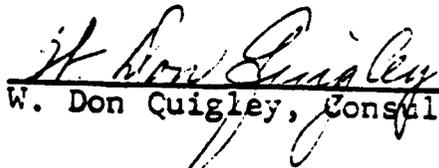
W. Don Quigley
 W. Don Quigley
 AAPG. Cert. # 1296
 APGS. Cert. # 3038

Plat No. 1

SURFACE USE AND OPERATING PLANS
FOR

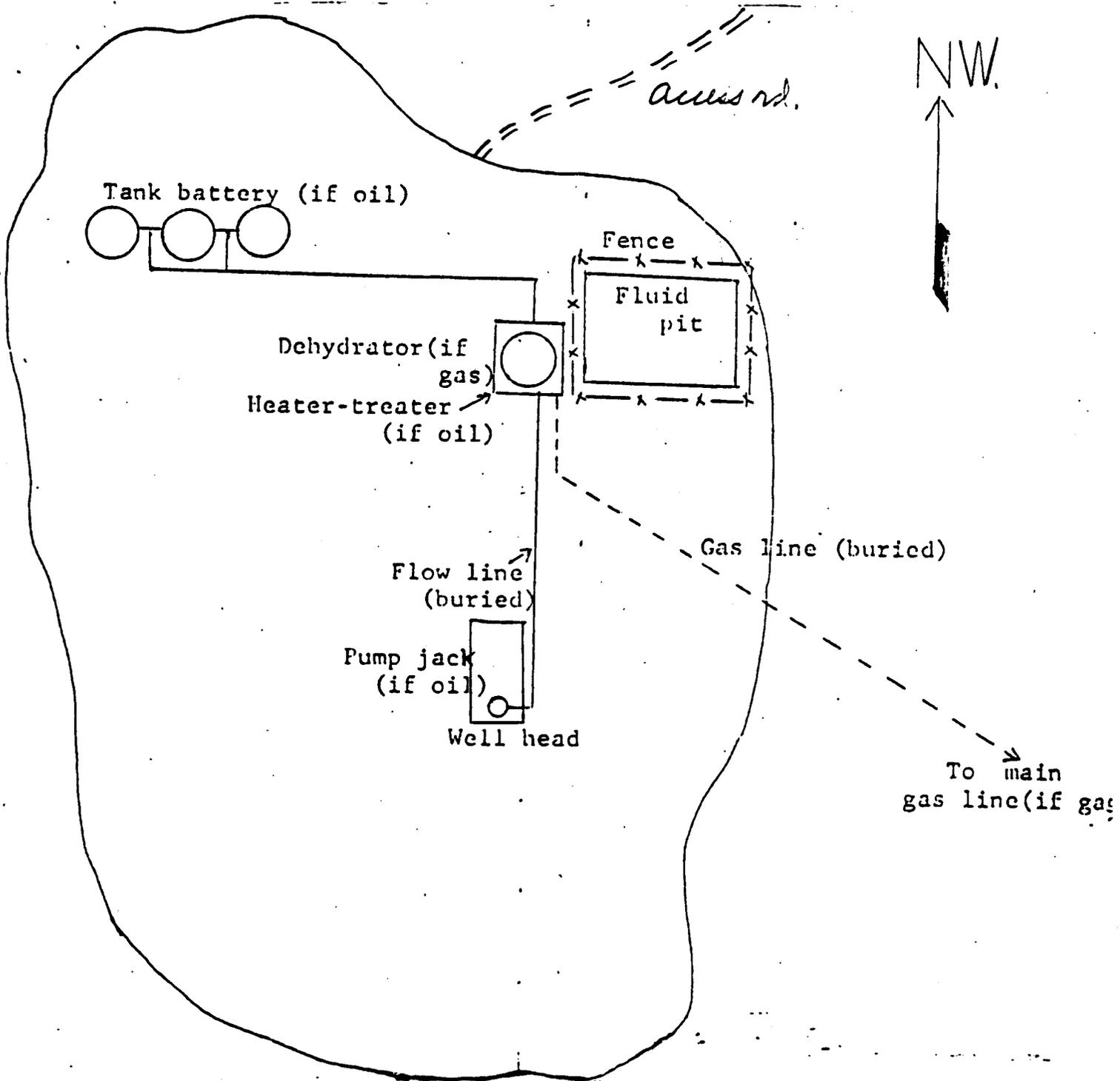
MATOMAS NORTH AMERICA INC.
BLACK MESA #1-34
SE. SW. SEC. 34-38S-21E
SAN JUAN COUNTY

1. Location: The exact location of the proposed well site is shown on Plat No. 1. The location is just south of the south end of Black Mesa as shown on the attached Map No. 1. It is $12\frac{1}{2}$ miles from Hwy. 47 going south from Blanding, Utah. The secondary road to the location takes off of Hwy 47 at the entrance to the Energy Fuels Ore Buying Station which is 7 miles south of Blanding. This secondary road is a good road and is graveled in part. It will need very little reconditioning. The site is in a rolling hills area off the point of Black Mesa and there are numerous uranium claims around the site; but there are no mines or operations in the region. Some drilling has been accomplished for uranium exploration.
2. Access Road: The location is about 5008 from a well used secondary road as shown on Map No. 1. This road will need very little construction. It will be about 20' wide and no additional material or culverts will be required.
3. Location of Existing Wells: See attached map.
4. Location of Production Equipment: A plan for the anticipated production equipment, if the well is successful, is submitted on Plat No. 2. This will probably be an oil well and will require pumping equipment, a heater-treater, and storage tanks. When production ceases this equipment will be removed and the land surface graded, levelled, and reseeded.
5. Water Supply: The water required for rig use and for drilling operations will be hauled to the location from Cottonwood Creek by truck. This will be a distance of about 10 miles.
6. Road Material: No additional road material such as gravel, sand, culverts will be required.
7. Waste Disposal: A reserve pit and burn pit will be constructed at the well site. See Plat No. 3. All excess water, mud, and drill cuttings will be deposited into the reserve pit which will be unlined. All trash, garbage and burnable material will be put into the burn pit which will be fenced with chicken wire to prevent spreading of the debris by the wind. Both of these pits will be folded in and covered as soon as feasible after the cessation of drilling operations. A toilet will be provided for the human waste.
8. Camp Facilities And Airstrips: No camp facilities other than two or three trailer houses at the well site will be needed. No airstrips will be required.

9. Well Site Layout: A plan for the drilling equipment layout required for the drilling of the well is submitted on Plat No. 3. The approximate dimensions of the site are shown. The site will be levelled for this equipment. Since the site is gently sloping and on the top of a low hill, the amount of surface disturbance will be minimal. Some fill will be pushed over the north side of the site to make it level. The reserve pit will be on the NE side and will be about 4 ft. deep with 4-5 ft. banks. It will be unlined. The surface of the site is barren and has no top soil of any significance.
10. Restoration: After drilling operations have been concluded and the equipment removed, the well site area will be cleaned, levelled and restored to normal. The surface soil will be pushed back over the location and the site reseeded, and the pits will be folded-in and covered. All trash and debris will be buried by at least four feet. If the well is successful, the site will be cleaned and readied for the production equipment. The pits will be covered. A small fluid pit which will be fenced may be needed for water disposal.
11. Land Description: The proposed well site is on gently sloping ground and will require a minimum of work to prepare it for the drilling operations. The land surface is barren and has little or no vegetation. There are no trees or heavy brush on the site.
12. Representation: The operators representative at the well site will probably be W. Don Quigley of Salt Lake City, Utah. The drilling contractor has not been definitely chosen to date. The location and restoration work will probably be done by C&W Construction Co. of Moab, Utah.
13. Certification:
I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access route; that I am familiar with the conditions which presently exist; that statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by the Natomas Company and its contractors in conformity with this plan and terms and conditions under which it is approved.
- Date: May 18, 1978
- 
W. Don Quigley, Consultant

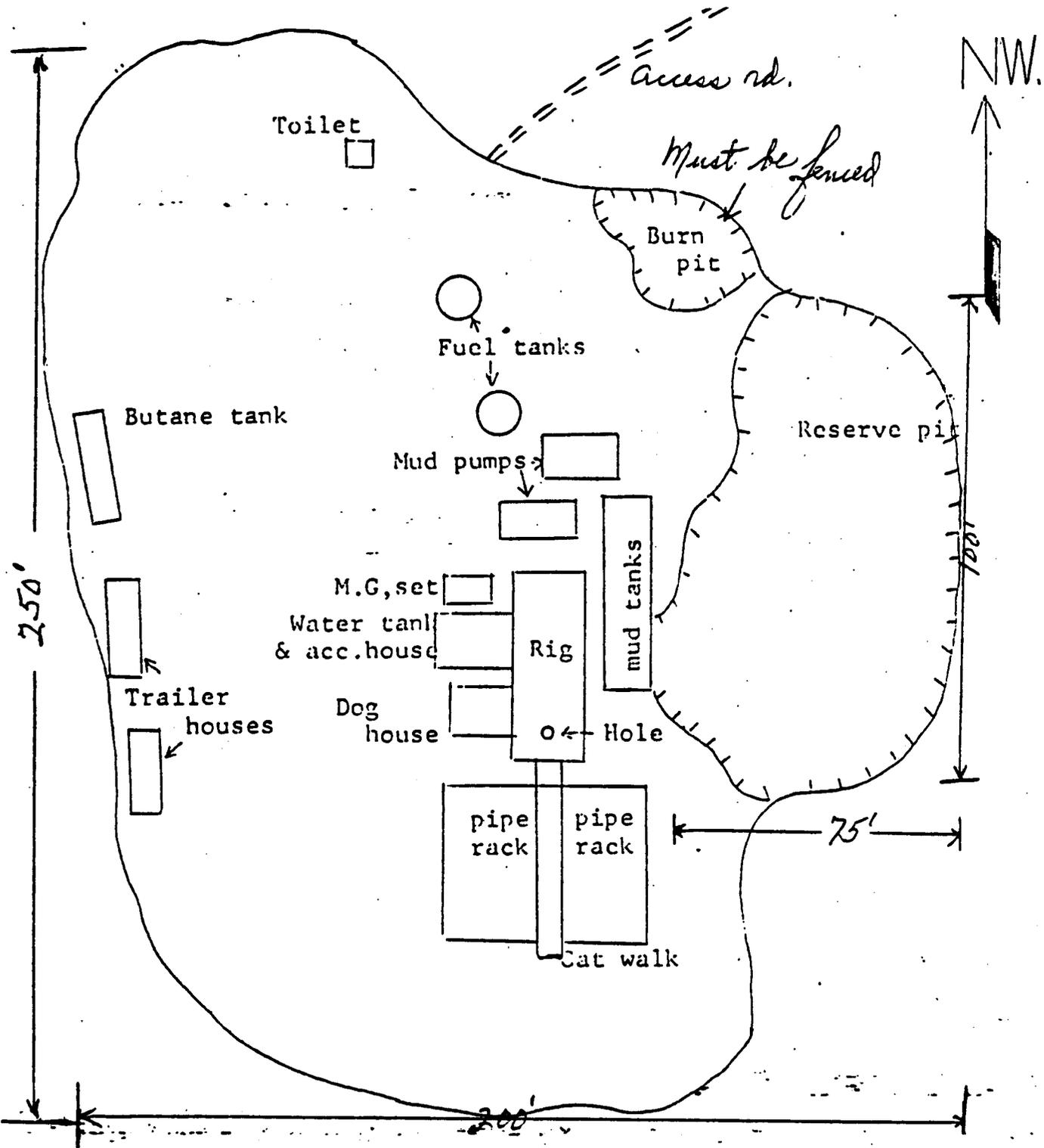
PLAN FOR PRODUCTION EQUIPMENT

NATOMAS NORTH AMERICA INC.
BLACK MESA #1-34 WELL
SAN JUAN COUNTY, UTAH



DRILLING EQUIPMENT LAYOUT
FOR

NATOMAS NORTH AMERICA INC.
BLACK MESA #1-34 WELL
SAN JUAN COUNTY, UTAH



Scale: 1 in. = approx 35 ft.

WELL CONTROL EQUIPMENT FOR

NATOMAS NORTH AMERICA INC.

BLACK MESA #1-34 WELL

The following control equipment is planned for the above designated well: (See attached diagram).

1. Surface Casing:
 - A. Hole size for surface casing is 12 1/4"
 - B. Setting depth for surface casing is approx. 250 ft.
 - C. Casing specs. are: 8 5/8" D.D., J-55, 24,000#, 8 rd. thread, new or used.
 - D. Anticipated pressure at setting depth is approx. 20 lbs.
 - E. Casing will be run using three centralizers and a guide shoe, and will be cemented with 725 sks of cement with returns to the surface.
 - F. Top of the casing will be at ground level.
2. Casing Head:

Flange size: 10", A.P.I. Pressure rating: 2000# W.P., Series 600; Cameron, CCT, or equivalent; new or used; equipped w/two 2" ports with nipples and 2", 2000# W.P. ball or plug valves. Casing head and valves set above ground level.
3. Intermediate Casing:

None.
4. Blowout Preventors:
 - A. Double rams; hydraulic; one set of blind rams; one set of rams for 3 1/2" or 4 1/2" drill pipe; 10" flange; 2000# or greater W.P.; Series 900; equipped with mechanical wheels and rod for back-up; set on top of casing head flange and securely bolted down, and pressure tested for leaks up to 2000# p.s.i.
 - B. Rotating Head: (none needed)

Shaffer, Grants or equivalent; set on top of blowout preventor and bolted securely; complete with Kelly drive, pressure lubricator; 3 1/2" or 4" rubber for 2000# W.P.; need not have hydril assembly on bottom.
 - C. Fill and Kill Lines:

The fill and kill lines (2" tubing or heavy duty line pipe) are to be connected thru the 2" valves on the casing head.
5. Auxiliary Equipment:

A float valve is to be used in the bottom drill collar at all times. A safety valve that can be stabbed into the drill pipe or drill collars is to be kept handy on the derrick floor at all times.
6. Anticipated Pressures:

The shut-in or formation pressures that will be encountered in the subject well are not known to be abnormally high. The pressure in the Shinarump at a depth of about 2900' should not be over 1000#; and the pressures in the Ismay and Desert Creek zones should not be over 1750#.

7. Drilling Fluids:

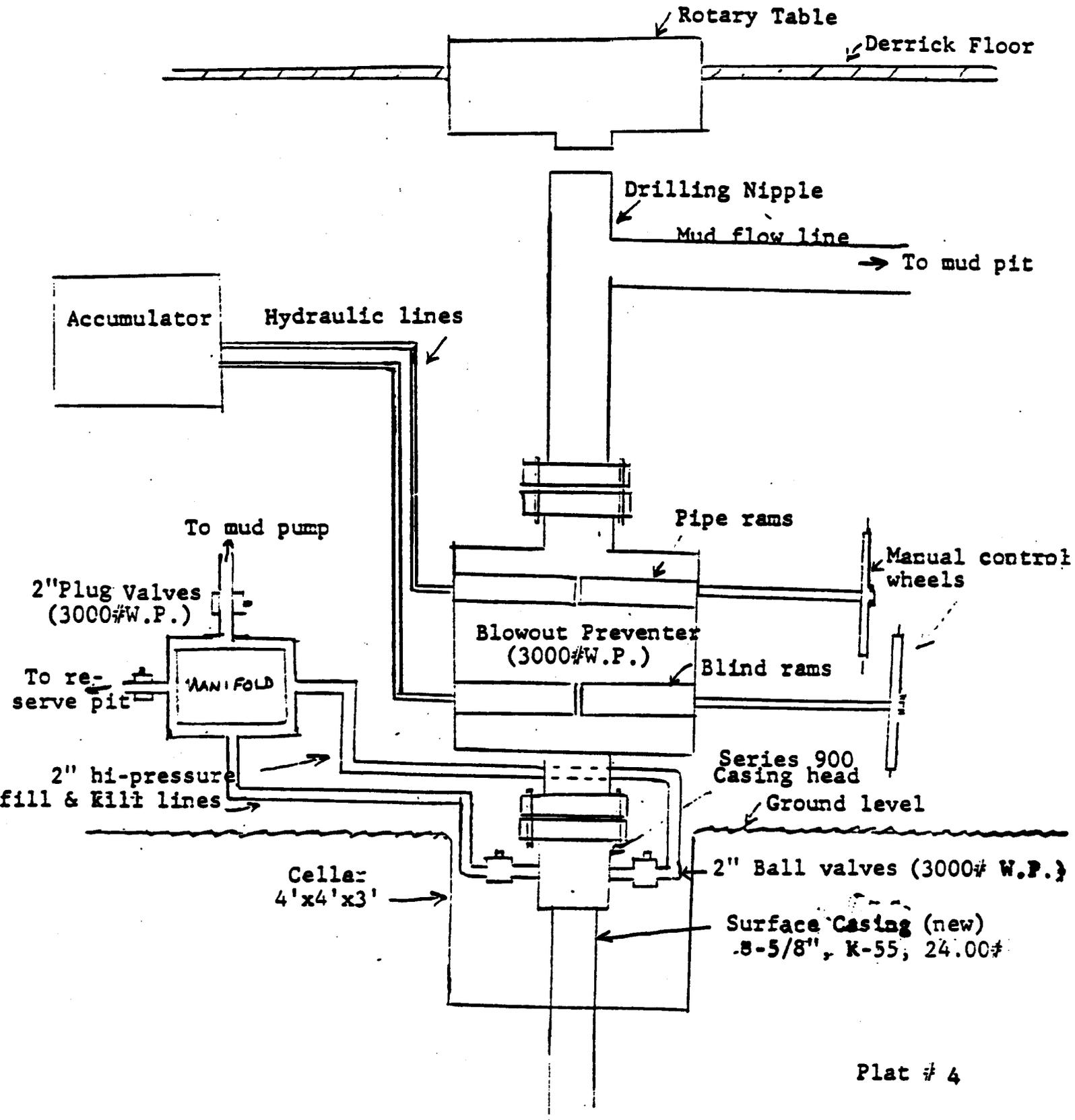
Normal fresh water gel mud will be used for the circulation medium on the subject well. The mud weight will be controlled at about 9 lbs/gal.; the viscosity at about 35-45 while drilling; and the water loss at about or below 10 cc/15 minute period.

8. Production Casing:

- A. Hole size for production casing: 7-7/8"
- B. Approx. setting depth: ~~6200~~'
- C. Casing specs.: 5 1/2" O.D., 14.50#, J-55, new
- D. Casing will be set thru the pay zones and cemented with sufficient thixotropic or R/C cement to bring the cement top about 200 ft. above the top of the uppermost pay zone.
- E. The pay zones will be perforated, broken down, and fracture treated, if necessary. The required surface equipment will then be installed.

SCHEMATIC DIAGRAM OF
CONTROL EQUIPMENT FOR T

NATOMAS NORTH AMERICA INC.
BLACK MESA #1-3 1/4 WELL
SAN JUAN COUNTY, UTAH



STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

** FILE NOTATIONS **

SEE
SW
Hermosa

Date: May 19, 1978

Operator: Natomas North America

Well No: Black Mesa #1-34

Location: Sec. 34 T. 38S R. 21E County: San Juan

File Prepared:
Card Indexed:

Entered on N.I.D.:
Completion Sheet:

API NUMBER: 43-037-30462

CHECKED BY:

Administrative Assistant [Signature]
Remarks: No other wells in vicinity
Petroleum Engineer [Signature]

Remarks:
Director [Signature]
Remarks:

INCLUDE WITHIN APPROVAL LETTER:

Bond Required: Survey Plat Required:
Order No. Surface Casing Change
to

Rule C-3(c), Topographic exception/company owns or controls acreage
within a 660' radius of proposed site

O.K. Rule C-3 O.K. In Unit

Other:

Letter Written/Approved

May 22, 1978

Natomas North America Inc.
1121 First Place
Tulsa, Oklahoma 74103

Re: Well No. Black Mesa Fed. 1-34
Sec. 34, T. 38 S, R. 21 E,
San Juan County, Utah

Gentlemen:

Insofar as this office is concerned, approval to drill the above referred to well is hereby granted in accordance with Rule C-3, General Rules and Regulations and Rules of Practice and Procedure.

Should you determine that it will be necessary to plug and abandon this well, you are hereby requested to immediately notify the following:

PATRICK L. DRISCOLL - Chief Petroleum Engineer
HOME: 582-7247
OFFICE: 533-5771

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (aquifers) are encountered during drilling.

Further, it is requested that this Division be notified within 24 hours after drilling operations commence, and that the drilling contractor and rig number be identified.

The API number assigned to this well is 43-037-30442.

Very truly yours,

DIVISION OF OIL, GAS AND MINING

CLEON B. FEIGHT
Director

**UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY**

SUBMIT IN DUPLICATE*

(See instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

14

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____
 b. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. RESVR. Other Dry

2. NAME OF OPERATOR
Natomas North America, Inc.

3. ADDRESS OF OPERATOR
1121 First Place, Tulsa, Oklahoma 74103

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
 At surface SE.SW.Sec.34,T38S,R21E,S.L.M.
 At top prod. interval reported below 1909' from W-line & 684' from S-line
 At total depth _____

5. LEASE DESIGNATION AND SERIAL NO.
U-20314

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
NA

8. FARM OR LEASE NAME
Federal

9. WELL NO.
Black Mesa #1-34

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
SE.SW.Sec.34-38S-21E
S.L.M.

14. PERMIT NO. _____ DATE ISSUED _____

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

15. DATE SPUNDED Jun 28, '78 16. DATE T.D. REACHED Jul 19 '78 17. DATE COMPL. (Ready to prod.) July 27 1978 18. ELEVATIONS (DF, REE, RT, GR, ETC.)* 5190' grd; 5200' K.B. 19. ELEV. CASINGHEAD 5192'

20. TOTAL DEPTH, MD & TVD 6392' 21. PLUG, BACK T.D., MD & TVD none 22. IF MULTIPLE COMPL., HOW MANY* none 23. INTERVALS DRILLED BY _____ ROTARY TOOLS 0-6392' CABLE TOOLS _____

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
none

25. WAS DIRECTIONAL SURVEY MADE
no

26. TYPE ELECTRIC AND OTHER LOGS RUN
Dual Induction-Laterolog; Gamma-Sonic; Gamma-Density-CNL

27. WAS WELL CORED
no

28. CASING RECORD (Report all strings set in well)

CASINO SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
<u>8 5/8"</u>	<u>24.00#</u>	<u>259'</u>	<u>12 1/2"</u>	<u>115 sks.</u>	<u>none</u>

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
<u>none</u>				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
<u>none</u>		

31. PERFORATION RECORD (Interval, size and number)

none

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
<u>none</u>	

33.* PRODUCTION

DATE FIRST PRODUCTION none PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) none WELL STATUS (Producing or shut-in) P&A

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
<u>none</u>							

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) _____ TEST WITNESSED BY _____

35. LIST OF ATTACHMENTS
Drilling History and Geologic Report

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED W. Don Gungley TITLE Cons. Geol. DATE Aug. 1, 1978

*(See Instructions and Spaces for Additional Data on Reverse Side)

DRILLING HISTORY
AND
GEOLOGIC REPORT
ON
NATOMAS NORTH AMERICA, INC.
BLACK MESA #1-34 WELL
SAN JUAN COUNTY, UTAH

By

W. Don Quigley
Consulting Geologist
Salt Lake City, Utah

August 1, 1978

GEOLOGIC REPORT
AND
DRILLING HISTORY
ON
NATOMAS-NORTH AMERICA, INC.
BLACK MESA #1-34 WELL
SAN JUAN COUNTY, UTAH

Operator: Natomas-North America, Inc.
1121 First Place, Tulsa, Okla. 74103

Contractor: Signal Oilfield Service
1200 Security Life Bldg., Denver, Colorado 80202

Location: SE. SW. Sec. 34-38S-21E, S.L.M., San Juan County
(1909' fr. W-line and 684' fr. S-line.)

Lease No.: U-20314 Elevation: 5190' grd; 5200' K.B.

Spudded-in: June 28, 1978

Surface Casing: 6 joints of 8 5/8", 24.00#, K-55 R-3 casing
set at 259' K.B. and cemented w/115 sks reg. cement
w/3% CaCl. Had returns to surface.

Total Depth: 6363' (6390' on E-logs)

Finished Drlg: July 19, 1978

Production Formation and Zone: none

Plugged and Abandoned: July 22, 1978

Drilling History

June 19-25: Had rig standing by; waiting on well permit approval
from U.S.G.S. and B.L.M.

June 26: Moved Signal Rig #20 to location.

June 27: Rigging-up. Drilled rat hole.

June 28: Drilled mouse hole. Began drilling surface hole (12 1/4")
at 6 A.M. Drilled 0-146' (146').

- June 29: Drilled 146' to 332' (186'). Drilled surface hole to 261'. Ran 6 jts. of 8 5/8" 24.00#, K-55, R-3 casing and set at 259' and cemented with 115 sks of regular cement with 3% CaCl. Had returns to the surface. Plug down at 9:30 A.M. Waited on cement for 6 hrs. Installed casing head and blowout preventers; and nipped up. Began drilling out cement and drilling ahead at 10 P.M. Drilling with water and Benex. Drilling at rate of 54 ft/hr. in Morrison sediments. Survey at 265' was 1/2°. Bit #1 (Hughes J-22-12 1/4") made 260' (0-260') in 23 3/4 hrs. Drilled at an avg. rate of 11 ft/hr.
- June 30: Drilled 332' to 2020' (1688'). Drilling with water and benex. Made rd-trip at 907' for new bit. Bit #2 (Smith-L4J) made 642' (265' to 907') in 11 1/2 hrs. Drilled at avg. rate of 79 ft/hr. in Morrison and Entrada sediments. Survey at 907' was 1/2°.
- July 1: Drilled 2020' to 2690' (670'). Drilling at avg. rate of 30-40 ft/hr. Drilling with water and benex. Est. top of Wingate formation at 2120' and top of Chinle at 2475'. Pump pressure at 1200# and weight on bit is 40 000# and rotating at 60 r.p.m.
- July 2: Drilled 2690' to 3344' (654'). Drilled to 3000' with water and benex and then mudded-up. Mud wt. is 8.9 and Viscosity is 32. Drilling at avg. rate of 30 ft/hr. with a button bit. Est. top of Shinarump at 2870'; top of Moenkopi at 2960'; top of De Chelley at 3200'; and top of Organ Rock at 3300'.
- July 3: Drilled 3344' to 3655' (311'). Drilling at rate of 20 ft/hr. in Organ Rock sediments. Down 1 1/2 hrs. for work on pump. Survey at 3600' was 1°. Mud wt. is 9.0; Viscosity is 32; Water loss is 18; and pH is 8.5.
- July 4: Drilled 3655' to 3941' (286'). Made rd. trip at 3890' for new bit. Bit #3 (Smith F-2J) made 2983' (907' to 3890') in 96 1/4 hrs. Drilled at avg. rate of 31 ft/hr. Survey at 3890' was 1 1/4°. Est. top of Cutler at 3890'. Mud wt. is 9.0. Viscosity is 35.
- July 5: Drilled 3941' to 4352' (411'). Drilling at avg. rate of 20 ft/hr. in Cutler sediments. Mud logger arrived at noon today. No shows to date. Drilling with 40,000# on bit and rotating at 60 r.p.m. Pump pressure is 1200# at 60 strokes per minute.

- July 6: Drilled 4352' to 4655' (303'). Drilling at rate of 11 to 15 ft/hr. in Cutler sediments. No shows or gas kicks.
- July 7: Drilled 4655' to 4880' (225'). Drilling rate has decreased to 8 to 10 ft/hr. No shows or gas kicks.
- July 8: Drilled 4880' to 5006' (126'). Had to make a rd-trip at 4931' due to loss of pump pressure (loss of 400#) due to hole in drill pipe. Found hole at 14 stds above drill collars (1350' from bottom); so came all the way out and put on new bit. Bit #4 (Smith F-3) made 1041 ft. (3890' to 4931') in 90½ hrs. Drilled at avg. rate of 11 ft/hr. Est. top of Rico formation at 4890'.
- July 9: Drilled 5006' to 5145' (139'). Made rd-trip at 5120' for hole in pipe. Found hole 65 stds out (at 4035'). Laid jt. down and went back in hole. Drilling at rate of 7 to 8 ft/hr. in Hermosa sediments. Est. top of Hermosa at 5120'.
- July 10: Drilled 5145' to 5288' (143'). Drilling at rate of 6 to 7 ft/hr. in limestone and shale. Mud wt. is 9.2; viscosity is 35; and water loss is 11.6 cc. No shows or gas kicks.
- July 11: Drilled 5288' to 5423' (135'). Drilling at rate of 6 ft/hr. in limestone and dark grey siliceous to carbonaceous shale.
- July 12: Drilled 5423' to 5548' (125'). Drilling slow at rate of 5 ft/hr. in limestone, shale and quartzite of Hermosa formation. No shows or gas kicks.
- July 13: Drilled 5548' to 5643' (95'). Made rd-trip at 5626' for new bit. Bit #5 (Smith-F3) made 695 ft. (4931' to 5626') in 113 hrs. Drilled at avg. rate of 6 ft/hr. in Hermosa sediments. Survey at 5626' was 3/4°.
- July 14: Drilled 5643' to 5822' (179'). Drlg. at rate of 7½ ft/hr. in limestone and dolomite. No shows or gas kicks.
- July 15: Drilled 5822' to 5850' (28'). Came out of hole at 5842' to replace rotary table. Got table replaced at 8 P.M. and went back in hole with Bit #5. Bit #6 had a number of buttons knocked off. Bit #6 (Smith F-3) made 216' (5626' to 5842') in 32½ hrs. Went back in hole and began drilling ahead at 11:20 P.M.

- July 16: Drilled 5822' to 6007' (185'). Drilling at avg. rate of 7½ ft/hr. in limestone and dolomite. No shows or gas kicks. Est. Upper Ismay at 5970'.
- July 17: Drilled 6007' to 6207' (200'). Est. top of Lower Ismay at 6050'. Some slight residual black oil stain in sucrosic dolomite in samples at 6010' to 6030'. Had 2-4 units gas kick. Had 4-5 units gas kick at 6060'-70' in a sucrosic to chalky limestone with very slight vuggy porosity, with scattered fluorescence and slight oil cut. Had drilling break at 6140' to 6205'. Drilled 3 to 5 min/ft. in black dolomitic shale and sucrosic dolomite. Had up to 27 units total gas with 65 units of ethane. Samples had scattered and dull fluorescence with slight cut.
- July 18: Drilled 6207' to 6250' (43'). Decided to test interval from 6050' to 6250'; so quit drilling at 0700 A.M. and so mixed gel to bring viscosity up to 60; circulated hole until 1200 A.M. and started out of hole with drill string. Bit #7 (Bit #5 R.R.-Smith F-3) made 408' (5842' to 6250') in 54 hrs., which is a total of 1095' in 167 hrs. for Bit #5. Drilled at an avg. rate of 7 ft/hr. in Hermosa sediments. Picked up test tool and went back in hole and ran DST #1 as follows:

Interval: 6050' to 6250' (200')

Init. Open: 15 min.

Init. Shut-in: 1 hr.

Final Flow: 1 hr.

Final Shut-in: 2 hrs.

Blow: Weak Blow initially decreasing to dead in 10 minutes. Dead on final flow period.

Rec.: 35 ft. of drilling mud

S.C.: 1000 cc - drilling mud

Pressures

IHP	=	3231#	FHP	=	3109#
IFP	=	121#-134#	FFP	=	134#-134#
ISIP	=	724#	FSIP	=	416#
		BHT	=	118°	

- July 19: Drilled 6250' to 6363' (113'). Finished running DST #1. Came out of hole with test tool; laid test tool down and went back in hole with Bit #3 (Smith F-2). Encountered a v.f.g. sandstone w/ fluorescence, slight cut

and 32 units gas at 6310' to 6327'. Encountered anhydrite at 6327'-40' and salt at 6340'. Drilled to 6363' and decided this was deep enough. Finished drilling at 11 P.M. Called Schlumberger to run logs. Began conditioning mud.

July 20: Finished conditioning mud and circulating at 0630 hrs. and came out of hole to run logs. Bit #8 (Bit #3 re-run) made 113' in 9¼ hrs. Drilled at avg. rate of 12 ft/hr. Waited on Schlumberger until noon. Began rigging up and logging at 1200 A.M. Ran Dual-Induction-Laterolog; Gamma-Sonic; and Gamma-Density-CNL logs. We're still logging at 1200 P.M.

July 21: Finished logging at 0300 A.M. Logs showed no favorable hydrocarbon zones. Waited on orders till 3:00 P.M. Decided to plug and abandoned hole. Laid down drill collars and went in hole with drill pipe to 6300'. Plugged hole as follows:

Plug #1: Placed 70-sk cement plug at 6300' to 6050' - across Desert Creek and Ismay zone. Pulled 35 jts. of drill pipe (31.4'/jt.).

Plug #2: Placed 40-sk cement plug at 5200' to 5050' - across top of Hermosa formation. Pulled 58 jts. of drill pipe.

Plug #3: Placed 40-sk cement plug at 3350' to 3200' - across De Chelly sand. Pulled 27 jts. of drill pipe.

Plug #4: Placed 30 sk cement plug at 2500' to 2400' - across bottom of Wingate sand. Pulled 39 jts. of drill pipe.

Plug #5: Placed 40 sk cement plug at 1300' to 1150' - across top of Entrada sand. Pulled 33 joints of drill pipe.

Plug #6: Placed 30 sk cement plug at 275' to 175' - across bottom of surface casing. Pulled rest of drill pipe out of hole.

July 22: Finished plugging hole at 0800 A.M. Released rig at 1200 noon. Began rigging down. Will place well marker and cement plug in top of surface casing. Location will be cleaned of all debris. Reserve pit is full of mud and will be allowed to evaporate before being folded-in and covered.

GEOLOGIC REPORT
ON
BLACK MESA #1-34 WELL
SAN JUAN COUNTY, UTAH

Introduction

The Natomas North America, Inc. - Black Mesa #1-34 well was designed to test the possibilities of reef-type reservoir production of oil or gas from the Ismay or Desert Creek zones of the Hermosa formation. Based on information from wells drilled in the surrounding area, it appeared possible that a positive shelf or platform existed in the region during Hermosa time on which reefs or detrital material from the same could have built up or been deposited. This accumulation, if present, could serve as a reservoir for hydrocarbons. The structural information from these wells also suggested that a structural high might be found in the Hermosa sediments that was not evident in the shallower formations.

Accordingly, the well was spudded in on June 28, 1978 and drilled to a total depth of 6363' (6392' by the E-logs) by July 19, 1978. This depth was about 40 feet below the top of the Paradox salt section in the Hermosa. Whereas the results of the well were unsuccessful, there was a thin upper Hermosa section, indicating a positive feature during this period, but there was no porosity in the Ismay or Desert Creek zones and hence no reef 'build-ups'. It is possible that some do exist in the area, but it will require some detailed geophysical work to pin-point them more accurately.

Since no favorable production zones were found, the well was plugged and abandoned on July 22, 1978. One drill-stem-test was run which covered the Lower Ismay and all the Desert Creek zone to determine the possible presence of fracturing which could provide some porosity and production even though there was no evidence of porosity in the samples. The test was unsuccessful. The electric logs made of the well included a Dual-Induction-Laterolog; a Gamma-Sonic log; and a Gamma-Density-CNL log. These logs confirmed the lack of any potentially productive zone.

Drilling History

A complete daily drilling history of the Black Mesa #1-34 well precedes this section of the report. No particular problems were encountered during the process of drilling the well. The

well was drilled to total depth (6391') within a 22-day period, which was reasonably good time. Careful control of the mud and drilling operations prevented any severe problems.

No coring was accomplished on the well and only one drill-stem-test was taken. The details of this test are given under the 'Drilling History' part of the report on July 18. A mud-logging trailer was employed and installed on the well at a depth of 4200' which was in the Cutler formation. The mud was continuously checked for gas shows from this depth to total depth.

The well was plugged and abandoned on July 21-22, 1978 and six cement plugs were placed in the well as noted in the 'Drilling History'. Some clean-up work was accomplished as soon as the rig was removed; but the major portion of the rehabilitation work will have to wait until some of the water and mud in the reserve pit evaporates and settles - probably sometime in October.

General Geology and Stratigraphy

The Black Mesa #1-34 well is located just east (about 2 miles) of the east flank of the Monument Upwarp. This uplift trends north-south and is about 45 miles long and 25 miles wide. It is a major structural feature in the area. The east flank is often designated as the Comb Ridge Monocline which dips about 45° to the east. Monument Upwarp appears to have been rejuvenated through several different periods of geologic history and thus there are many variations in the thickness and structural attitude of the various formations. There is some faulting in the area which has also distorted the continuous attitude of the sediments. There are numerous local structures super imposed on the upwarp; such as: East Dome, West Dome, North Dome, Beef Basin, Fish Creek Dome, and Mitten Butte Anticline. Fish Creek Dome is located about 3 miles west of the subject well location. It is quite probable that a fault, trending north-south, is present along and parallel to Comb Wash. The structure which is evident in the surface sediments (Morrison) around the well site is a very gentle anticlinal nose trending and dipping to the southeast. This is a probable extension of the Fish Creek Dome Anticline on the west side of the Comb Ridge Monocline.

The information developed by the data from the subject well tends to confirm the presence of a positive area during upper Pennsylvanian (upper Hermosa) time. Apparently, however, the shelf or platform did not receive any deposits of reef detrital material during Ismay or Desert Creek time at the well site and did not have any biostromes or reef build-up. The environment at this

time in the well site area seems to have been fairly quiet and shallow marine waters and fairly near shorelines and deposition was principally dolomite, anhydrite, and some chalky limestone. The amount of limestone was very small and may have been due to later alteration rather than original deposition. Some reef build-ups and/or biostromes may be present in the area, but they will probably be local and relatively small, less than 4 square miles in extent, and will thus require some detailed geophysical work to assist in locating them.

Stratigraphy and Oil and Gas Shows

In general, the stratigraphy of the subject well was quite uniform in comparison with adjacent wells. The various formations were in sequence and were fairly normal and consistent in thickness and lithology. As noted above, the only variation was the slightly thinner (about 50 feet) section in the upper Hermosa; and this is one of the usual prerequisites to having favorable reservoir prospects in the Ismay and Desert Creek zones in the region.

Oil and gas shows were minimal in the subject well. The first show observed was at 6010' to 6030' (6040'-60' on E-logs) where there was a gas kick of 2 to 4 units along with some slight residual black oil stain in tight sucrosic dolomite with no fluorescence. A gas kick of 4 to 5 units at 6060' which gradually increased to about 8 units at 6110' was found in sucrosic to chalky limestone with very slight vuggy (v. small) porosity and sucrosic dolomite. There was some scattered fluorescence and slight oil cut. (Ethane gas content was about 4 units.)

A gas kick of 18 units total gas (27 units ethane) was obtained at 6160' (6190' on E-log) at the top of the Desert Creek. This increased to 45 units total gas (65 units ethane) by 6200'. This was in a light gray, sandy to sucrosic limestone with no porosity and dark gray sucrosic dolomite with no porosity. Some scattered fluorescence and slight oil cut were present. The lower part of the Desert Creek was brown sucrosic dolomite and black dolomitic shale that had a gas kick of about 15 units, and a slight gas odor, but no fluorescence.

The Lower Ismay section and most all the Desert Creek section were tested in DST #1 and there was no recovery of hydrocarbons (35 ft. of drilling mud), and the recorded pressures were quite low. This tended to confirm the complete lack of favorable porosity observed in the cuttings.

The best oil and gas show obtained in the well was at 6310' to 6340' (6320'-6340' on E-logs). A gas kick of 20 to 32 units total gas with larger amounts of ethane was obtained in this interval. The samples showed a light gray, very-fine-grained, tight dolomitic sandstone with good light blue fluorescence and slight oil cut. However, the porosity appeared to be very low and this was later confirmed by the E-logs (2% to 8%).

The formations with their tops, thicknesses, and datum points which were encountered in the subject well as determined from the electric logs are as follows:

<u>Formation</u>	<u>E-log</u>	<u>(Sample)</u>	<u>Thickness</u>	<u>Datum</u>
Morrison	Surface		1130'	5200' K.B.
Summerville	1130'		120'	4070'
Entrada	1250'		430'	3950'
Navajo	1680'		440'	3520'
Kayenta	2120'	(2090')	20'	3080'
Wingate	2140'	(2120')	360'	3060'
Chinle	2500'	(2475')	390'	2700'
Shinarump	2890'	(2870')	100'	2310'
Moenkopi	2990'	(2960')	235'	2210'
De Chelly	3225'	(3200')	95'	1975'
Organ Rock	3320'	(3300')	605'	1880'
Cutler	3925'	(3890')	995'	1275'
Rico	4920'	(4890')	235'	280'
Hermosa	5155'	(5120')	845'	45'
U. Ismay*	6000'	(5970')	75'	-800'
L. Ismay*	6075'	(6050')	85'	-875'
Gothic Sh.	6160'	(6130')	34'	-960'
Desert Ck.*	6194'	(6155')	156'	-994'
Paradox Salt	6350'	(6340')	—	-1150'
Total Depth	6392'	(6363')		

* Zones which had hydrocarbon shows.

Comparison of the data from the subject well with that on the Texaco well located in Section 25 of T 38S, R 21E. reveals that the top of the Ismay and Desert Creek zones in the subject well was about 50 feet lower structurally. A similar comparison with the Tenneco well in Sec. 8 of T 39S, R 21E. (about 2½ miles to the southwest) reveals that the Ismay and Desert Creek zones were about 450 feet lower structurally in the subject well. It is thus apparent that a position farther to the southwest and more nearly on the axis of the Fish Creek anticlinal nose, but still east of the Comb Wash Fault, would be more favorable for hydrocarbon prospects in the Ismay and Desert Creek zones. The

Tenneco well was completed as a producing oil well and had an initial production rate of 240 barrel of oil per day from the Desert Creek. The well produced a total of 2087 bbls. of oil before being abandoned in 1964 after 18 months of production.

The upper Hermosa section in the subject well was slightly thinner (845' thick) than either the Texaco well (870' thick) or the Tenneco well (850' thick); so the well site was on a positive platform or shelf during the late Pennsylvanian period.

A detailed descriptive sample log of the cuttings of the well from 2000' to total depth is attached hereto.

Conclusion and Recommendation

The Natomas North America, Inc. - Black Mesa #1-34 well was drilled to a depth of 6392' (by the E-logs), which was about 40 feet below the top of the Paradox salt section. The objective horizons in the subject well, the Ismay and Desert Creek zones of the Hermosa formation, were devoid of porosity and only had minimum hydrocarbon shows. Thus the well was plugged and abandoned.

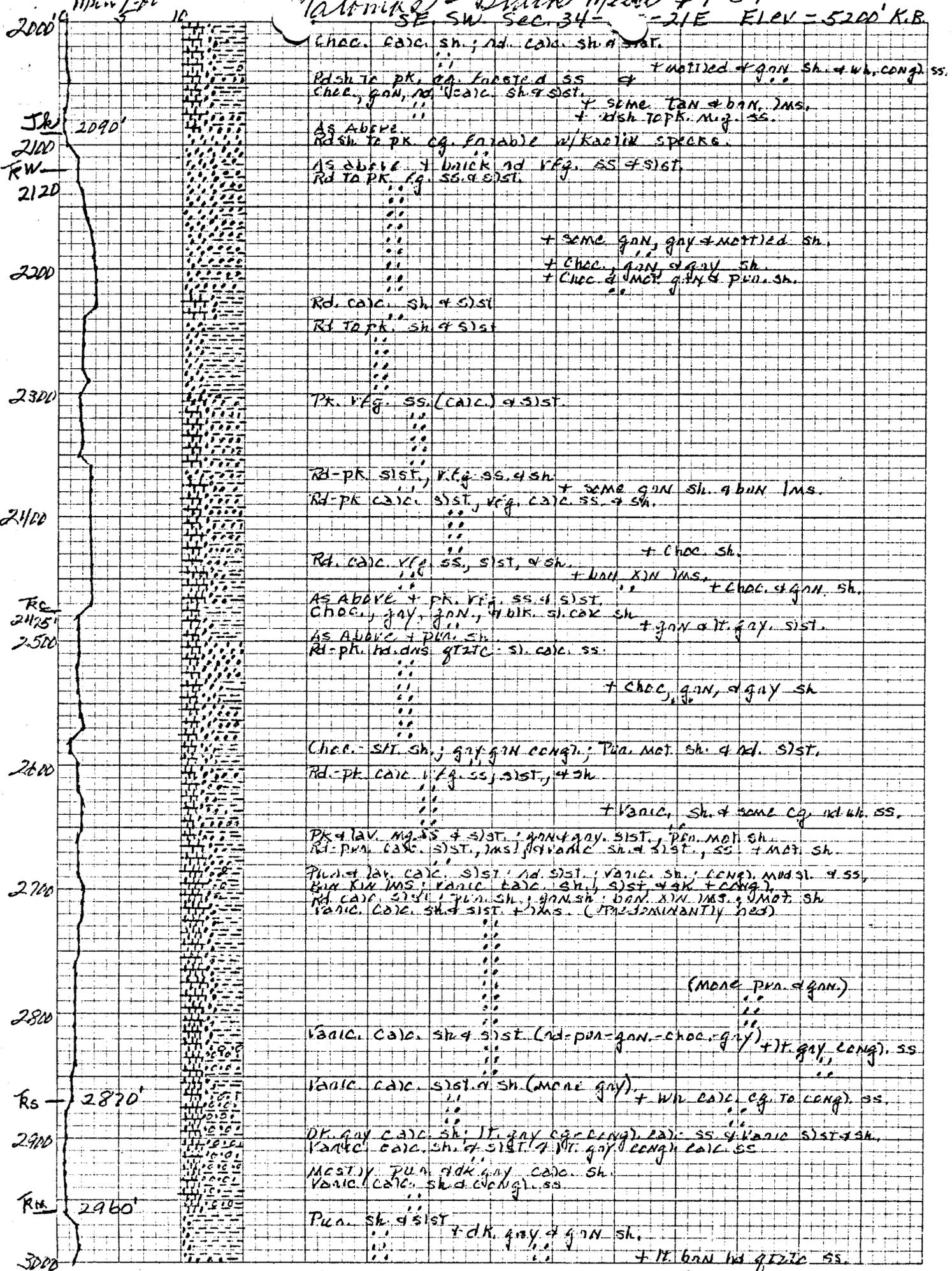
The data did show that the upper Hermosa section was relatively thin, suggesting that a positive platform or shelf area did exist in the region during this period. However, no reefs or biostromes were present under the well site. Since the Tenneco well located about 2½ miles southwest of the subject well had some production from the Desert Creek zone and was about 450' higher structurally, it is quite possible that a position farther to the southwest would have been more favorable. The Tenneco well in the SE. SE. of Section 8-39S-21E was located on the southeasterly plunging axis of the Fish Creek Anticline and on the east side of the Comb Wash Fault. Two other wells were drilled in the S½ of Section 8 (on the east side of the fault) at a later date without success. Several wells have been drilled on Fish Creek Dome on the west side of the fault without success. It is, therefore, obvious that the porosity and permeability in the Desert Creek zone in the area are quite limited and local and no large reservoir for hydrocarbons has been found.

Because of the probable limited extent of the potential hydrocarbon reservoirs in the area (probably less than 4 square miles in area), it is highly recommended that before any further drilling is accomplished in the region, that the area be flown on a one-mile grid (E-W and N-S) using an optically pumped helium magnetometer and flying at two or three different levels over the

anomalies developed. This type of geophysical investigation will outline all the structural features, possible reef or biostrome banks, locate the faults, and determine depths to the favorable anomalous features. This can be done at a very nominal cost. No other form of geophysical investigation can do this so thoroughly, so quickly, and so cheaply. The favorable features outlined by this method could then be checked with two or three seis lines, if desired. This method improves the accuracy and thoroughness of the geophysical expense and makes the seismic dollar go several hundred times farther.

W. Don Quigley
W. Don Quigley
Consulting Geologist
AAPG Cert. #1296
APGS Cert. #3038

Yatimina - Black Mesa #1-34
 SE SW Sec. 34 - 21E Elev - 5200' K.R.



46 0860

5 X 5 TO 1/2 INCH * 7 X 10 INCHES
 KEUFFEL & ESSER CO. MADE IN U.S.A.

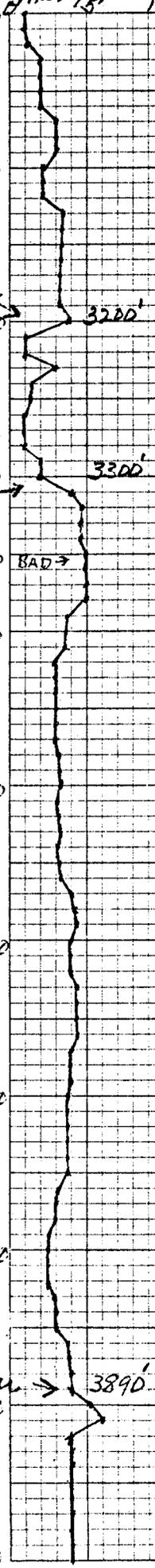
* Note: 6' log tops & lithology are 30' deeper.

Daly ^{1/2} Core
Mch 15/54

12 - tunnel - Black Mesa #1-74 Core.

2000' - 4000'

3000'
3100'
3200'
3300'
3400'
3500'
3600'
3700'
3800'
3900'
4000'



Panic. sh. + some wh. congl. ss.
 Rd. sh. + sist. + some wh. congl. ss.
 Pua., choc., gon., sh. + sist. + rd. sh. + sist.
 str. rd. calc. sh. + sist.
 Rd. mica calc. ss. + some wh. congl. ss. + wh. - lt. gray - gon. bent. congl.
 Rd. sist. + ss. + ban. to wh. mg. - calc. - congl. ss. + panic. sh.
 Rd. mica calc. vfg. ss. + sist.; choc. sh.; Pua. sh.; gon. + gray sh.; wh. congl.
 As above + some wh. - pt. - gon. + some mg. - congl. ss.
 wh. mg. to calc. congl. ss. - sist. calc. + lt. ban. to rd. calc. - congl. ss.
 As above + rd. sh. + sist.
 Lt. rd. calc. sh. + congl. ss. w/ ch. pebbles + gray. ang. sist.
 Lt. rd. - lt. gray - wh. pebb. congl. ss.
 Lots of round ch. + gtz pebbles.
 Brn. rd. calc. vfg. ss., sist., + sh. + rd. calc. sist., ss. + sh.
 Lt. gray bent. + some sh.
 Lt. gray calc. + some congl. ss.
 Brn. rd. calc. sist. + sh. + br. rd. vfg. mica calc. ss. + lt. gray congl.
 Brn. rd. vfg. calc. ss., sist., + sh.
 Brn. rd. vfg. - gtz. calc. ss.; calc. sist. + sh. + Pua. sist. + some gray congl.
 + some congl. ss.
 Brn. rd. vfg. mica calc. ss. + rd. sist. + sh.
 + some med. gon. + Pua. sh.
 + some gray gon. calc. ss.
 + rd. calc. bent. sh. + sist.
 Brn. rd. vfg. mica calc. ss., sist., + sh. + gon. congl. sh. + Pua. sh.
 As above + some lt. gray to wh. congl. calc. ss.
 Rd. calc. vfg. ss. + sist.; gon. sh. + ss.; lt. gray sh. + calc. calc. ss.
 Rd. mica calc. vfg. ss. + sist. + Pua. sh. + wh. congl. ss.
 + wh. mg. calc. ss.
 Wh. fg. to vfg. frosted ss. + some wh. fg. calc. ss.
 Rd. calc. sist. + vfg. mica ss. + gon. + dk. gray gtz. ss. + rd. sist.
 Gon. + some sh. of gray ang. congl.
 wh. vfg. to gtz. calc. vfg. + rd. calc. sist. + Pua. sh.
 Gon. sh.; wh. vfg. calc. ss.; ban. ms.; Anhy + rd. mica sist.
 Wh. to rd. fg. calc. ss.; choc. sist.; gray ms.; gon. sh.; Anhy
 wh. to rd. rd. vfg. - gtz. calc. ss.; Pua. sh.

46 0860

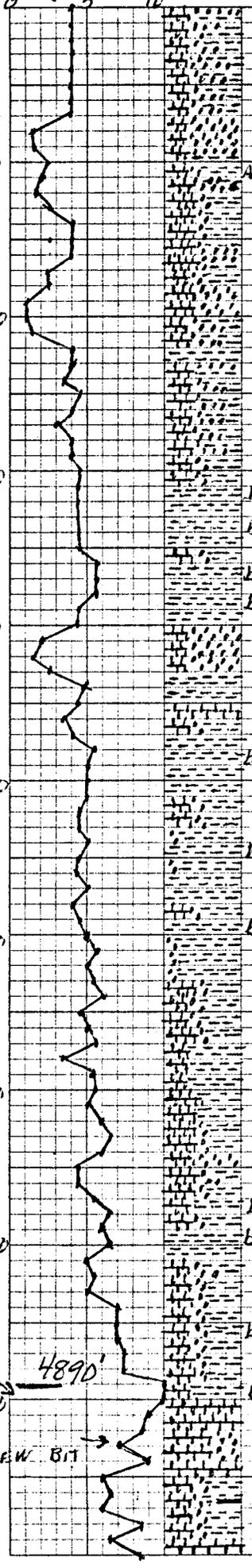
5 X 5 TO 1/2 INCH * 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

Natoma - Black Mesa #1-34 Borehole

4000 - 5200'

Depth Time

4000
4100
4200
4300
4400
4500
4600
4700
4800
4890'
4900'
5000'



with vfg. calc. ss.; gan. sh.; chcc. sh.
+ Ad. Calc. sst. + vfg. ss.
Chcc. sh.; gray. Frosted ss.; Ad. sst.
Blk. calc. sh.; vfg. ss.; wh. vfg. calc. ss.
Wh. to lt. gray mg. calc. ss. (wet.) + dk. gray to blk. sh.
Lt. calc. mg. vfg. ss. + Varic. calc. sh.
Varic. calc. sh.; lt. blk. ms.; Anky.; Ad. calc. sst.
Varic. calc. sh.; sst.; ss.; (fg. to mg. - lt. rd.)
Varic. calc. sst. + sh.; blk. ms. & Xln. calcite.
As above + lots of blk. Xln. ms.
Varic. calc. sst. + sh.
Wh. to lt. gray cong. soft. calc. ss. & blk. ms.
Varic. calc. sh.; sst.; vfg. ss. (Ad.)
Pur. mica. sh. + Ad. vfg. calc. ss.; pur. & gray. mt. sh.; Ad. calc. sh.
Gan. & pur. sh.; Ad. calc. sst. + vfg. ss. & Ad. sh.
Varic. calc. sh.; sst. + ss.
(Lots of pur. sh.)
Pur. & dk. gray. sst. & sh. (calc.)
lt. gray-gan. bent. sh. + Ad. & pur. sh.
Soft pur. to chcc. sh. + Ad. calc. sst.; gray bent. sh. & calcite
lt. gray-gan. bent. sh. + pur. & Ad. sh.
lt. Ad. to tan calc. mg. ss. (blk. - Ad. gan.)
Pur. & gan. gray sh.
blk. Xln. ms.
Gray, pur. & Ad. calc. sst.
lt. gray bent. sh.
Pur. sh. + Ad. calc. sst. & sh.
Varic. sh. & calc. sst.
Chcc. sh. & sst. + Ad. sh.
lt. gray-gan. bent. sh.
Varic. sh. & sst.
Pur. sh.
Rd. calc. sst.
lt. gray bent. sh.
Rd. calc. sst. & sh.
+ pur. sh. & blk. ms.
Varic. calc. sh. & sst. + blk. Xln. ms.
Blk. ss. calc. sh. + lt. blk. Xln. ms.
Dk. gray-gan. calc. sh.; blk. ms. & Ad. sst.
Wh. vfg. to dns. lmy. ss. + dk. gray calc. sh. & blk. ms.
Varic. calc. sst. & sh. + blk. ms.
lt. gray calc. bent. sh.
lt. Ad. to pr. calc. sst. & sh.
lt. gray bent. sh. & pur. sh.
Some wh. vfg. calc. ss. & varic. calc. sst. & sh.
Varic. calc. sst. & sh. + blk. ms.
lt. gray to gray gan. bent. calc. sh.
Blk. blk. ms. (Xln.)
Blk. to dk. gray Xln. ms. & wh. to lt. gray vfg. to dns. calc. ss.
lt. gray to blk. Xln. ms.
Rd. calc. sst. & gray sh. & blk. ms.
Rd. calc. sst. + blk. of calc.
Dk. blk. calc. mica. sst. to quartz. ss.
lt. blk. sucresia to Xln. ms.

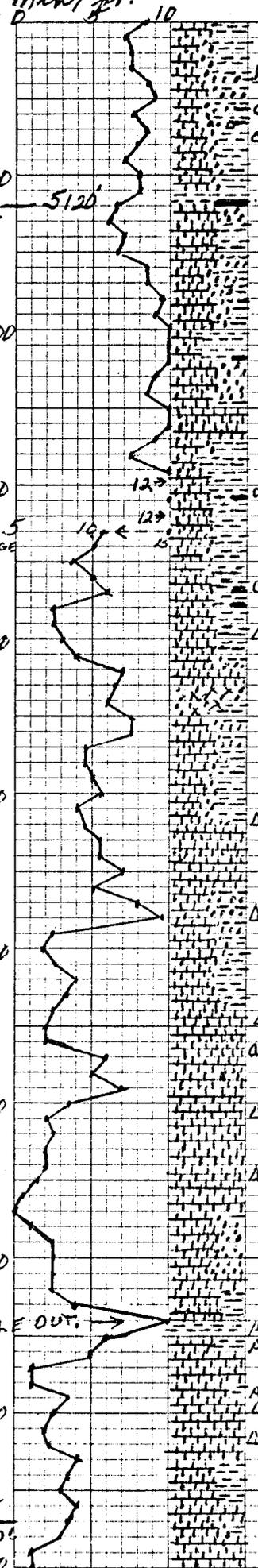
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5 X 5 TO 1/2 INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

Natemas - Black Mesa #1-34 Core 5000-6000'

5000'

At top figure
mark ft.



LT. BAN. SUC. TO XIN. IMS & BK. sh.
 DK. gny silic. TO CALC. SH. & rd. calc. sst
 Rd. to PK. calc. sst
 + wh. calc. to bent. cons. cong. ss.
 varic. calc. sst & sh. + wh. vfg. calc. ss. & lt. ban. xln. ims.
 As above + pcs. of (dol)
 + some wh. calc. to bent. cong.
 DK. gny. carb. sh. w/ pcs. of (dol); ban. xln. ims.; rd. sst.; lt. gny bent. sh.
 Varic. sst & sh. + wh. to lt. ban. xln. to suc. ims.
 DK. gny carb. sh. & (dol)
 Lt. gny. calc. vfg. ss. & gny suc. ims.
 DK. gny. suc. ims & dk. gny calc. sh.
 var. gny, & rd. calc. sst & sh. + wh. & lav. f.g. - cong. ss.
 Gny, lav. & rd. sst. & sh.; dk. ban. suc. ims.
 DK. gny. silic. carb. sh.; dk. rd. sh.; ban. ims + some pcs of (dol)
 Lt. gny suc. ims & gztz ss.
 Lt. gny to lt. ban. suc. to silic. ims. + dk. gny silic. sh.
 Lt. ban. suc. ims
 Gny carb. silic. sh.; ban. sst. & ims.
 Wh. calc. bent. sh.
 Gny carb. silic. sh.; ban. silic. ims
 Gny. silic. carb. sh.; lt. gny. ims + pcs of (dol)
 Varic. calc. sst. & sh. + dk. ban, pk., & rd. silic. sh.
 Wh. chalky ims.; gny suc. ims; dk. gny carb. sh.; & pcs of (dol)
 DK. ban. xln. ims.; wh. chalky ims; gny sh. + ch.
 Some wh. vfg. calc. ss.
 Ban. xln. ims. (if dol)
 DK. ban. rd. gztz + dk. gny silic. - carb. sh. & ch.
 DK. gny. xln. ims.; gny calc. gztz ss.; ban. calc. sst.
 DK. gny silic. mica. sh.; ban. sst. & ims. + gny & rd. sh.
 DK. ban. to gny suc. ims & dol some wh. cong. ss.; ban. & gny silic. sh.
 Varic. sst & sh. & ban. silic. ims.
 DK. gny. gztz. ss. gny - ban. silic. dol. & gny silic. sh. + ch. shands.
 Lt. gny suc. to xln. ims
 Lt. gny to dk. gny suc. mica. to xln. ims
 Rd., dk. gny, pk., & pur. calc. gztz ss. & sst + rd, pur, & pk. gztz ss & sst
 DK. ban. xln. dol; gny mica silic. sh.; rd. sst
 Blk. dol. sh.; dk. gny silic. sh. & lt. ban. xln. ims.
 Lt. ban. & lt. gny (xln. to xln. ims w/ ch. + dk. ban. suc. dol).
 DK. ban. to dk. gny suc. dol.
 Wh. to lt. gny chalky ims + lt. gny suc. ims.
 Lt. ban. to lt. gny xln. to suc. ims w/ calc. if.
 DK. gny dol. sh. & lt. gny xln. ims
 Lt. gny vfg. calc. ss.; gny & ban. xln. ims; chalky ims.
 Lt. gny - ban. suc. ims.
 DK. gny to blk. dol. sh.
 Ban. xln. only (waxy) + lt. gny xln. to suc. ims.
 Xln. any. silic. dol. sh. & lt. ban. xln. ims.
 Lt. gny to ban. chalky to xln. ims + lt. gny suc. ims, ch. & any
 Lt. ban. xln. ims & ch.
 Lt. gny to lt. ban. xln. to suc. ims & ch
 Blk. suc. dol. & dol. sh. & dk. gny silic. sh.
 Lt. ban. to wh. xln. to chalky ims. + lt. ban. xln. ims,
 Lt. ban. xln. to wh. chalky ims. + wh. suc. to sd. ims & blk. dol. sh.

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 KEUFFEL & ESSER CO. MADE IN U.S.A.

Demarc
 5970
 6000

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPlicate
(Other instructions on reverse side)

Utah State

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

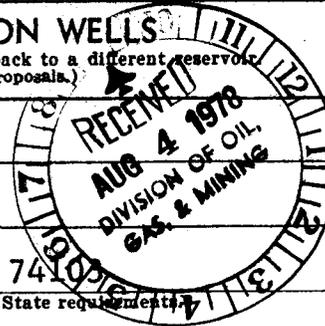
U-20314

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL GAS WELL OTHER Dry



7. UNIT AGREEMENT NAME

NA

2. NAME OF OPERATOR

Natomas North America, Inc.

8. FARM OR LEASE NAME

Federal

3. ADDRESS OF OPERATOR

1121 First Place, Tulsa, Oklahoma 74105

9. WELL NO.

Black Mesa #1-34

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)

10. FIELD AND POOL, OR WILDCAT

Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

SE.SW.Sec.34-38S-21E
S.L.M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

5190'grd.; 5200'K.B.

12. COUNTY OR PARISH

San Juan

13. STATE

Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

WATER SHUT-OFF

REPAIRING WELL

FRACTURE TREAT

MULTIPLE COMPLETE

FRACTURE TREATMENT

ALTERING CASING

SHOOT OR ACIDIZE

ABANDON*

SHOOTING OR ACIDIZING

ABANDONMENT*

REPAIR WELL

CHANGE PLANS

(Other) _____

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The above well was drilled to a depth of 6392' and no productive hydrocarbon zones were found. The well was plugged and abandoned on July 22, 1978 as follows: (Permission to plug and abandon in this manner was granted)

- Plug #1 ---6300' to 6050' (250') ----70 sks-- across Desert Ck. & Ismay
- Plug #2 ---5200' to 5050' (150") ----40 sks-- across top of Hermosa
- Plug #3 ---3350' to 3200' (150') ----40 sks-- across DeChelly sand
- Plug #4 ---2500' to 2400' (100') ----30 sks-- across bottom of Wingate
- Plug #5 ---1300' to 1150' (150') ----40 sks-- across top of Entrada
- Plug #6 --- 275' to 175' (100') ----30 sks-- across bottom of surface casing.

Well marker and 10-sk plug placed in top of casing. Burn pit and cellar, rat hole and mouse hole have been filled in. The reserve pit will be allowed to evaporate some prior to folding-in and covering. This will probably be done in late October and the rest of the rehabilitation work will be done at that time.

18. I hereby certify that the foregoing is true and correct

SIGNED H. Non Grayley
(This space for Federal or State office use)

TITLE Cons. Geol.

DATE Aug. 1, 1978

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____ DATE _____



SCOTT M. MATHESON
Governor

GORDON E. HARMSTON
Executive Director,
NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
(801) 533-5771

August 21, 1978

OIL, GAS, AND MINING BOARD

I. DANIEL STEWART
Chairman

CHARLES R. HENDERSON
JOHN L. BELL
THADIS W. BOX
C. RAY JUVELIN

Natomas North America, Inc.
1121 First Place
Tulsa, Oklahoma 74103

Re: Well No. Black Mesa 1-34
Sec. 34, T. 38S, R. 21E,
San Juan County, Utah

Gentlemen:

This letter is to advise you that the electric and or radioactivity logs for the above referred to well(s) are due and have not been filed with this office as required by our rules and regulations.

If electric and/or radioactivity logs were not run on said well, please make a statement to this effect in order that our records may be kept accurate and complete.

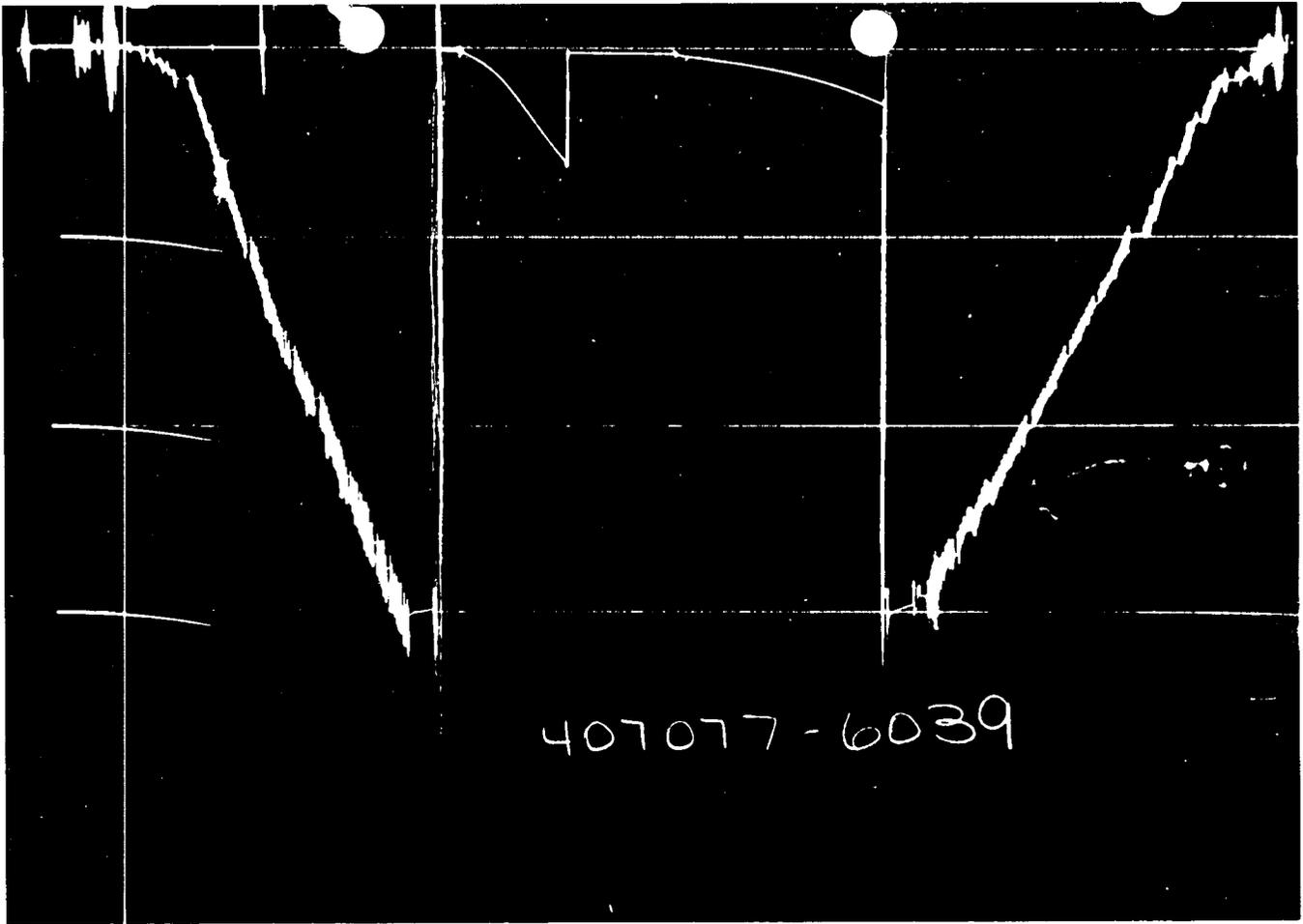
Thank you for your cooperation relative to the above.

Very truly yours,

DIVISION OF OIL, GAS, AND MINING

KATHY OSTLER
RECORDS CLERK

↑ PRESSURE ↓



Each Horizontal Line Equal to 1000 p.s.i.

BLACK MESA
 Lease Name
 1-34
 Well No.
 6050' - 6250'
 Tested Interval
 NATOMAS - NORTH AMERICAN, INCORPORATED
 Lease Owner/Company Name

Legal Location
 Sec. - Twp. - Rng. 34 - 38 - 21
 Field Area
 MILD CAT
 County
 SAN JUAN
 State
 UTAH

FLUID SAMPLE DATA				Date	7-19-78	Ticket Number	407077
Sampler Pressure _____ P.S.I.G. at Surface				Kind of Job	OPEN HOLE TEST	Halliburton District	FARMINGTON
Recovery: Cu. Ft. Gas _____				Tester	D. HOEFER	Witness	P. QUIGLEY
cc. Oil _____				Drilling Contractor			
cc. Water _____				SIGNAL DRILLING COMPANY PW			
cc. Mud 2250				EQUIPMENT & HOLE DATA			
Tot. Liquid cc. 2250				Formation Tested			
Gravity _____ ° API @ _____ °F.				Ismay			
Gas/Oil Ratio _____ cu. ft./bbl.				Elevation			
RESISTIVITY _____ CHLORIDE CONTENT _____				5200' Ft.			
Recovery Water _____ @ _____ °F. _____ ppm				Net Productive Interval			
Recovery Mud 1.1 @ 85 °F. _____ ppm				65' Ft.			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				All Depths Measured From			
Mud Pit Sample 1.2 @ 83 °F. _____ ppm				Kelly Bushing			
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm				Total Depth			
Mud Weight 9.4 vis 48 sec				6250' Ft.			
Cushion				Main Hole/Casing Size			
TYPE AMOUNT				7 7/8"			
Ft. Depth Back Pres. Valve				Drill Collar Length			
Surface Choke				341' I.D. 2.25"			
Bottom Choke				Drill Pipe Length			
3/4" Adj. Choke 3/4"				5652' I.D. 3.826"			
Recovered 35 Feet of mud.				Packer Depth(s)			
Recovered Feet of				6045' - 6050' Ft.			
Recovered Feet of				Depth Tester Valve			
Recovered Feet of				6024' Ft.			
Recovered Feet of							
Remarks							
- SEE PRODUCTION TEST DATA SHEET -							
TEMPERATURE							
Gauge No. 6039		Gauge No. 6040		Gauge No.		TIME	
Depth: 6029 Ft.		Depth: 6245 Ft.		Depth: Ft.			
12 Hour Clock		24 Hour Clock		Hour Clock		Tool	
Blanked Off No		Blanked Off Yes		Blanked Off		Opened 1030 A.M.	
Actual 118 °F.		Pressures		Pressures		Opened 245 A.M.	
		Pressures		Pressures		Bypass 245 P.M.	
		Field Office		Field Office		Reported Computed	
		Field Office		Field Office		Minutes Minutes	
Initial Hydrostatic		3029 2982		3231 3086			
Flow Initial		14 14		121 134			
Flow Final		27 16		134 137		15	
Closed in		626 602		724 727		60	
Flow Initial		27 26		134 147			
Flow Final		27 31		134 149		60	
Closed in		300 293		416 414		120	
Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		3007 2959		3109 3070			

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	2.50"	1'	
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	5652'	
Drill Collars	6 1/4"	2.25"	341'	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5"	.83"	8'	6016'
Hydro-Spring Tester	5"	.75"	5'	6024'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.50"	4'	6029'
Hydraulic Jar	5"	1.75"	5'	
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.53"	6'	6045'
Distributor				
Packer Assembly	6 3/4"	1.53"	6'	6050'
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars	6 1/4"	2.25"	158'	
Flush Joint Anchor	5 3/4"	2.50"	35'	
Blanked-Off B.T. Running Case	5 3/4"	3.50"	4'	6245'
Total Depth				6250'

1/2